

### **REMARKS**

Claims 1, 4, 9-11, 14-16, 19, 20, and 22 are currently rejected. Claim 19 is cancelled without prejudice and thus claims 1, 4, 9-11, 14-16, and 20, and 22 are pending in the present application. Claims 1, 9, 14, 15, and 20 are amended. Reconsideration of the claim rejections are respectfully requested in view of the following remarks.

### **Claim Objections**

The Examiner objects to claims 14 and 19-22 for depending from cancelled claims.

Claim 14 has been amended to depend from claim 9.

Claim 19 is cancelled as discussed above.

Claim 20 has been amended to depend from claim 15 and claims 21-22 depend from claim 20.

Thus all pending claims depend from non-cancelled claims and withdrawal of the claim objections is respectfully requested.

### **Claim Rejections - § 101**

The Examiner rejects claims 15 and 19-22 under 35 U.S.C. 101 as being directed to non-statutory subject matter.

The rejection under 35 U.S.C. 101 is improper because the claims recite an automatic recognition system, which qualifies as a machine, and is thus statutory subject matter. For example, the recognition system of claim 15 includes a decoder and a comparator, which may have hardware equivalents.

The Examiner contends that the specification suggests that claims 15-22, which are directed to the automatic recognition system, can only be implemented via a software only

embodiment. In any event, claim 15 has been amended to recite a processor computing the overall distance measures. Therefore, claim 15 is believed to be tied to another statutory class.

Withdrawal of the rejections of claims 15 and 20-22 under 35 U.S.C. 101 is respectfully requested.

Claim 19 was cancelled without prejudice.

### **Claim Rejections - § 103**

Claims 1, 4, 9-11, 14-16 and 19-22 stand rejected under 35 U.S.C 103(a) as being unpatentable over U.S. Patent No. 5,995,930 to Hab-Umbach in view of U.S. Patent No. 6,078,885 to Beutnagel, and further in view of U.S. Patent No. 5,548,647 to Naik as set forth in pages 3-4 of the Office Action.

Hab-Umbach, Beutnagel, and Naik, alone or in combination, do not disclose or suggest, *wherein generating the synthetic waveform includes adjusting the pitch of the synthetic waveform to flat using a pitch synchronous overlap and add (PSOLA) technique*, as recited in amended claim 1.

The Examiner concedes (in paragraph 4, lines 4-8 of the Office Action) that Hab-Umbach “does not specifically teach generating a synthetic waveform for each of N textual transcriptions”. Thus, it also follows that Hab-Umbach does not disclose or suggest generating the synthetic waveform by adjusting its pitch to flat using a PSOLA technique. Indeed, Hab-Umbach is silent regarding use of pitch.

Beutnagel teaches (in FIG. 2 and col. 6, lines 59-61) text to speech synthesis 245 and use of pitch to predict stress for words. However, unlike the pitch of the synthetic

waveform of claim 1, the pitch of synthetic speech generated by the text to speech synthesis 245 of Beutnagel is not adjusted to flat using a PSOLA technique.

Naik teaches (in FIG. 8) a frame 112 including a pitch 116. However, unlike the pitch of the synthetic waveform of claim 1, the pitch 116 of Naik is not adjusted to flat using a PSOLA technique.

For at least the foregoing reasons, Hab-Umbach, Beutnagel, and Naik, alone or in combination, do not disclose or suggest, *wherein generating the synthetic waveform includes adjusting the pitch of the synthetic waveform to flat using a pitch synchronous overlap and add (PSOLA) technique*, as recited in claim 1. Thus claim 1 is believed to be patentable over Hab-Umbach, Beutnagel, and Naik.

Claim 4 is believed to be patentable over Hab-Umbach, Beutnagel, and Naik at least by virtue of its dependence from claim 1.

Hab-Umbach, Beutnagel, and Naik, alone or in combination, do not disclose or suggest, *generating a score  $\underline{S}$  from the overall distance measure  $\underline{D}$  [between the original waveform and the synthetic waveform], an acoustic model score  $\underline{A}$  of the corresponding textual transcription for the synthetic wave, and a language model score  $\underline{L}$  of the corresponding textual transcription, wherein the score  $S = -D + (a * A) + (b * L)$* , as essentially recited in amended claim 9.

Hab-Umbach teaches (in col. 1, lines 21-24) an aggregate score derived from a word score and from a language model value. Even assuming *arguendo* that the word score and the language model value are respectively interpreted as a distance measure and a language model score, the aggregate score of Hab-Umbach is not further based on an acoustic model score of a textual transcription. Further, unlike the score of claim 9, the

aggregate score of Hab-Umbach is not generated from an overall distance measure  $D$  between an original waveform and a synthetic waveform, an acoustic model score  $S$  of a corresponding textual transcription, and a language model score  $L$  of the textual transcription, where the score  $S$  equates to  $-D + (a * A) + (b * L)$ .

Beutnagel is silent on use of a score.

Naik teaches (in col. 3, lines 10-13) a verification score, which is compared against a threshold value. However, unlike the score of claim 9, the verification score of Naik is not generated from an overall distance measure  $D$  between an original waveform and a synthetic waveform, an acoustic model score  $S$  of a corresponding textual transcription, and a language model score  $L$  of the textual transcription, where the score  $S$  equates to  $-D + (a * A) + (b * L)$ .

For at least the foregoing reasons, Hab-Umbach, Beutnagel, and Naik, alone or in combination, do not disclose or suggest, *generating a score  $S$  from the overall distance measure  $D$  [between the original waveform and the synthetic waveform], an acoustic model score  $A$  of the corresponding textual transcription, and a language model score  $L$  of the corresponding textual transcription, wherein the score  $S = -D + (a * A) + (b * L)$* , as essentially recited in claim 9. Thus, claim 9 is believed to be patentable over Hab-Umbach, Beutnagel, and Naik.

Claims 10, 11, and 14 are believed to be patentable over Hab-Umbach, Beutnagel, and Naik at least by virtue of their dependence from claim 9.

Claim 15 is believed to be patentable over Hab-Umbach, Beutnagel, and Naik for least similar reasons to claim 9. For example, claim 15 has been amended to recite *scores based on an overall distance measure between each synthetic waveform and the*

normalized original waveform, an acoustic model score of a corresponding textual transcription of the synthetic waveform, and a language model score of the corresponding textual transcription.

Claim 19 is cancelled without prejudice.

Claims 16 and 20-22 are believed to be patentable over Hab-Umbach, Beutnagel, and Naik at least by virtue of their dependence from claim 15.

Withdrawal of the rejections under 35 U.S.C. 103(a) is respectfully requested.

In view of the foregoing amendments and remarks, it is respectfully submitted that all the claims now pending in the application are in condition for allowance. Early and favorable reconsideration is respectfully requested.

Respectfully submitted,

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